

A close-up, low-angle shot of the front of a yellow school bus. The words "SCHOOL BUS" are prominently displayed in large, black, sans-serif capital letters across the front of the hood. Above the text are three small, rectangular amber lights. Below the text are two large, round, red-tinted headlights. The bus's windshield is visible below the hood, and the sky is a clear, bright blue in the background.

SCHOOL BUS

*How Reducing School Bus Idling Can
Help Children's Health and
Create Cleaner Air*

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Reducing Engine Idling

The background of the slide is a faded, front-facing view of a yellow school bus. The words "SCHOOL BUS" are printed in large, bold, black letters across the front of the bus, just below the windshield. The bus's headlights and grille are visible at the bottom of the frame.

- Air pollution
- Human health
- Wasted fuel and money
- Engine wear and tear
- Idling myths
- Clean School Bus USA
- School board policy

Air Pollution

- Campbell County in Non-attainment of NAAQS for PM_{2.5} and ozone
- PM_{2.5} can
 - Cause lung damage and premature death.
 - Aggravate asthma and bronchitis.
- Diesel exhaust
 - Determined a likely human carcinogen
 - Contributes to ozone formation, acid rain, and global climate change

Human Health



- Who is at risk?
 - Children
 - Elderly
 - Populations with health conditions
- Children most sensitive
 - Breathe more air by body weight
 - Lungs still developing

Wasted Fuel and Money

- ½ Gallon of fuel used per hour of idling
- 1 bus/5 minutes/7.5 gallons/year
- 50 buses/60 minutes day/4500 gallons
 - Save \$6,750/year (at \$1.50/gallon)

Engine Wear and Tear

- Extended idling causes engine damage
- Cummins says to idle at most 3-5 minutes before operating with a load
- Caterpillar cautions idling can cause carbon build up
- IC corporation says idling
 - Reduces fuel economy
 - May decrease oil life

Idling Myths

The background of the slide is a faded, front-facing view of a yellow school bus. The words "SCHOOL BUS" are printed in large, bold, black letters across the front of the hood. The bus's headlights and windshield are visible, and the overall image has a light, semi-transparent appearance to allow the text to be read clearly.

- Myth: Warm up engine with long idle periods, especially in cold weather
- Fact: Bus and engine manufacturers suggest a warm up time of less than five minutes

Idling Myths

- Myth: Better for engine to run at low speed than at regular speeds
- Fact: Running an engine at low speed causes twice the wear on internal parts compared to driving at regular speeds

Idling Myths

- Myth: the engine must be kept running in order to operate the school bus safety equipment. It's impossible to run this equipment off the internal circuitry because the battery will run down.
- Fact: safety equipment can be operated without the engine running through re-wired circuitry for up to an hour with no ill-effects on the electrical system of the bus.

Idling Myths

- Myth: Idling is necessary to keep the cabin comfortable
- Fact: Depending on the weather, many buses will maintain a comfortable interior temperature for some time without idling.

Campbell County School District Idling Policy

- Limits idling to protect human health and the environment
- Cold weather provisions
- Rewards and consequences
- Other schools and states with similar policies in Ohio, Vermont, and Texas



Clean School Bus USA

<http://www.epa.gov/cleanschoolbus>

- EPA partner program
- Protect children's health by:
 - Eliminating unnecessary public school bus idling
 - Retrofitting public school buses
 - Funding for cleaner fuels, like biodiesel
 - Replacing oldest buses





CSB USA Grant Application



- Anti-Idling Policy
- Alternative Fuels
 - Biodiesel
 - Ultra Low Sulphur Diesel
- Bus retrofits
 - Diesel Particulate Muffler
 - Diesel Oxidation Catalyst
 - Crankcase Ventilation System

Pollution Reductions: Biodiesel

- B20 will reduce
 - PM by 9%
 - CO by 10%
 - Unburned hydrocarbons by 21%
 - Sulphur emissions

Total Pollution Reductions

- With alternative fuels and retrofit technologies
 - PM by 50-90%, and up to 100% in cabin
 - Reduction in sulfur oxides
 - Significant reductions of nitrogen oxides and air toxics

Acknowledgements

- United States Environmental Protection Agency, Clean School Bus USA
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- Campbell County School School Board
- Superintendent Strong
- Ted Roseberry, Pupil Transportation
- YOU!!



Questions?

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